F.G.E., LTD.

Fewell Geotechnical Engineering, Ltd.
2825 Koapaka St. • Honolulu, Hawaii 96819 • (808) 836-2171

File No. R-0054-H5F
November 20, 1980

Gentry-Waipio, Ltd.
94-539 Puahi Street
Waipahu, Hawaii 96797

Attention: Mr. James White

Subject: FINAL GRADING REPORT
Mikilana I Subdivision
Gentry-Waipio Development
Waipio, Oahu, Hawaii

Gentlemen:

At your request, we have provided testing and inspection services for the site grading of the Mikilana I Subdivision of the subject project. The initial phases of work were completed as a mass grading operation to accommodate excess material generated by the grading of the Liolio and Lelepua II Subdivisions. This mass grading is detailed in our Mass Grading Report dated September 24, 1979.

The remainder of the grading work resumed with the clearing and stripping of the remaining areas. Soft spots encountered were compacted prior to placement of fill.

Fill operations were undertaken using dump trucks and Caterpillar DW21 and 631B scrapers to haul the material, which was spread by D-8 and D-9 bulldozers. Compaction was accomplished by the use of sheepsfoot rollers, a Bomag vibratory wedgefoot compactor and loaded scrapers.

The material for the fill operations was generated from the Liolio and Lelepua II Subdivisions, on-site cuts and excess from utility excavations. This material consisted of low to moderate plasticity Silts (ML-MH) and was compacted in uniform lifts of approximately 8 inches in thickness, generally at the approximate optimum moisture content.

Field density test performed by our firm indicated that adequate compaction was being obtained. These tests showed values in excess of 90 percent relative compaction as determined by Laboratory Compaction Test ASTM D1557.

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Lots 1 through 78 received properly compacted engineered fill and are complete according to the field grade stakes.

Lots 79 through 97 were cut to final grade according to the field grade stakes and compacted to a minimum of 90 percent relative compaction.

Grading of the streets designated as MK-1 through MK-4 have also been completed. Tests taken on the fill material within the roadway embankments indicated densities exceeding 95 percent relative compaction within 24 inches of the final subgrade elevations. Fill placed below this level was compacted in excess of 90 percent relative density.

In summary, the earthwork for Lots 1 through 97 of the Mikilana I Subdivision and the streets designated as MK-1 through MK-4 has been completed in accordance with the Grading Ordinance of the City and County of Honolulu and the requirements of our Soils Investigation Report dated November 1976.

A Site Plan, Figure 1, is included to indicate the field density test locations. The results of the laboratory and field tests performed by our firm are summarized in Tables I and II and graphically exhibited in Figures 2 through 12.

Should you have any questions regarding this matter, please feel free to contact us at your convenience.

Respectfully submitted,

FEWELL GEOTECHNICAL ENGINEERING, LTD.

Alan J Shimamoto

Alan J. Shimamoto, P.E.
Project Engineer

AJS/fse

Enclosures

TABLE I

Summary of Field Density Test Results

Test No.	Date	Location	Elevation*	Dry Density (pcf)	Moisture Content (%)	Material Type	Percent Compaction
	1978						
1	10-02	Mass Fill	FG -8.0	90.0	28.2	K	98
2	10-02	Mass Fill	FG -6.0	89.5	27.7	K	97
3	10-03	Mass Fill	FG -7.0	85.1	28.1	L	97
4	10-03	Mass Fill	FG -4.0	90.1	25.3	I	94
5	10-04	Mass Fill	FG -3.0	90.0	26.4	I	93
6	10-04	Mass Fill	FG -3.0	92.3	24.1	I	92
7	10-05	Mass Fill	FG -3.0	92.9	25.5	I	96
8	10-05	Mass Fill	FG -2.5	100.9	26.4	E	100
9	10-06	Mass Fill	FG -2.0	94.7	25.3	I	98
10	10-11	Mass Fill	FG -3.0	94.4	25.8	I	97
11	10-11	Mass Fill	FG -2.5	85.9	25.3	L	98
12	10-11	Mass Fill	FG -2.0	87.6	24.5	L	96
13	10-12	Mass Fill	FG -1.0	83.8	26.0	L	96
14	10-12	Mass Fill	FG -0.5	84.4	27.2	L	96
15	10-13	Mass Fill	FG -1.5	94.3	22.8	I	97
16	10-13	Mass Fill	FG -0.5	94.9	24.6	I	98
	1979						
17	5-12	Lot 119	FG -2.0	101.5	23.3	P	97
18	5-12	Lot 118	FG -1.0	100.7	24.1	P	96
19	5-12	Lot 119	FG -0.5	102.0	24.5	P	98
20	5-12	Lot 78	FG -2.5	99.7	22.8	P	95
21	5-12	Lot 74	FG -1.5	99.7	24.0	P	95
22	5-12	Lot 77	FG -1.0	100.8	23.8	P	97
23	5-12	Lot 72	FG -0.5	99.0	23.3	P	95
24	5-12	Lot 76	FG -0.5	99.8	23.8	P	96
25	5-14	Lot 118	FG	97.4	25.4	P	93

* Referenced to FG (Finish Grade) or FSG (Finish Subgrade)

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Gentry-Waipio Development
Waipio, Oahu, Hawaii

TABLE I

Summary of Field Density Test Results

Test No.	Date	Location	Elevation*	Dry Density (pcf)	Moisture Content (%)	Material Type	Percent Compaction
	1979						
26	5-14	Lot 114	FG	95.8	24.9	P	92
27	5-14	Lot 110	FG	96.2	24.9	P	92
28	5-14	Lot 106	FG	96.3	25.4	P	92
29	5-14	Lot 102	FG	98.9	24.6	P	95
30	5-14	Lot 98	FG	98.9	24.8	P	95
31	5-14	Lot 94	FG	97.6	24.9	P	93
32	5-14	Lot 90	FG	98.2	25.5	P	94
33	5-14	Lot 86	FG	99.1	23.8	P	95
34	5-14	Lot 82	FG	99.7	23.2	P	95
35	5-14	Lot 78	FG	100.1	24.3	P	96
36	5-14	Lot 74	FG	100.3	24.7	P	96
37	5-15	Lot 70	FG	101.6	23.0	P	97
38	5-15	MK-4 1+75	FSG	103.3	22.7	A-1	100
39	5-15	MK-4 5+20	FSG	97.8	26.8	I-3	99
40	5-15	MK-4 8+50	FSG	99.6	25.0	A-1	98
41	5-18	Lot 66	FG	100.2	24.4	P	96
42	5-18	Lot 62	FG	98.0	25.0	P	94
43	5-18	Lot 58	FG	98.6	24.7	P	94
44	5-23	MK-1 Cul-de-Sac	FG -4.5	95.6	26.1	R	93
45	5-23	MK-1 Cul-de-Sac	FG -4.0	98.2	25.5	R	95
46	5-23	MK-1 Cul-de-Sac	FG -3.0	98.6	25.4	R	96
47	5-24	MK-1 Cul-de-Sac	FG -3.0	100.0	24.8	R	97
48	5-24	MK-1 Cul-de-Sac	FG -2.5	99.9	24.5	R	97
49	5-24	MK-1 Cul-de-Sac	FG -2.0	99.4	25.3	R	97
50	5-24	MK-1 Cul-de-Sac	FG -1.5	98.7	24.9	R	96

* Referenced to FG (Finish Grade) or FSG (Finish Subgrade)

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TABLE I

Summary of Field Density Test Results

Test No.	Date	Location	Elevation*	Dry Density (pcf)	Moisture Content (%)	Material Type	Percent Compaction
	1979						
51	5-25	MK-1 Cul-de-Sac	FG -1.0	99.4	26.1	R	97
52	5-25	MK-1 Cul-de-Sac	FG -0.5	100.7	24.5	R	98
53	5-25	MK-1 Cul-de-Sac	FSG	99.7	24.0	R	97
54	6-05	Lot 1	FG -5.5	99.7	24.9	R	97
55	6-05	Lot 3	FG -4.5	98.7	25.5	R	96
56	6-06	Lot 2	FG -4.5	98.9	24.1	R	96
57	6-06	Lot 1	FG -3.5	97.3	23.9	R	94
58	6-06	Lot 4	FG -3.0	97.8	25.0	R	95
59	6-06	Lot 1	FG -2.5	98.4	23.8	R	95
60	6-07	Lot 16	FG -2.0	97.9	23.8	R	95
61	6-12	Lot 5	FG -3.0	97.9	25.3	R	95
62	6-14	Lot 5	FG -2.5	98.8	26.1	R	96
63	6-15	Lot 3	FG -2.0	100.4	25.1	R	97
64	7-03	Lot 1 Slope	FG -4.0	97.6	23.8	O	96
65	7-03	Lot 1 Slope	FG -3.0	99.2	25.1	O	97
66	7-03	Lot 1 Slope	FG -2.0	98.1	26.0	O	96
67	7-05	Lot 1 Slope	FG -1.5	98.8	25.2	O	97
68	7-05	Lot 1 Slope	FG -1.0	96.5	24.8	O	95
69	7-05	Lot 1 Slope	FG -0.5	97.7	25.0	O	96
70	7-25	Lot 9	FG -3.5	100.6	25.0	O	99
71	8-29	Lot 12	FG -3.0	96.1	25.1	A	95
72	8-29	Lot 1	FG -3.0	95.5	22.6	A	94
73	8-30	Lot 4	FG -1.0	96.2	24.7	A	95
74	8-30	Lot 2	FG -2.0	97.4	24.6	A	96
75	8-30	Lot 1	FG -2.0	98.2	22.4	A	97

* Referenced to FG (Finish Grade) or FSG (Finish Subgrade)

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Gentry-Waipio Development
Waipio, Oahu, Hawaii

TABLE I

Summary of Field Density Test Results

Test No.	Date	Location	Elevation*	Dry Density (pcf)	Moisture Content (%)	Material Type	Percent Compaction
	1979						
76	8-30	Lot 5	FG -1.0	97.4	22.9	A	96
77	8-31	Lot 3	FG	95.8	24.3	A	95
78	8-31	Lot 1	FG	95.3	26.0	A	94
79	8-31	Lot 2	FG	95.9	24.5	A	95
80	9-04	Lot 1 Slope	FG -7.0	99.7	25.1	A	99
81	9-04	Lot 1 Slope	FG -6.0	98.8	27.5	A	98
82	9-04	Lot 6	FG -5.5	99.3	25.7	A	98
83	9-04	Lot 1 Slope	FG -5.0	100.5	24.4	A	99
84	9-04	Lot 6	FG -5.0	89.0	36.5	K	92
85	9-05	Lot 1 Slope	FG -4.5	91.2	31.6	K	99
86	9-05	Lot 6	FG -4.5	91.3	34.0	K	99
87	9-05	Lot 1 Slope	FG -4.0	91.3	30.4	K	99
88	9-05	Lot 6	FG -4.0	90.8	32.5	K	99
89	9-05	Lot 1 Slope	FG -3.5	90.3	33.1	K	98
90	9-05	Lot 6	FG -3.0	99.5	22.4	A	98
91	9-06	Lot 6	FG -2.0	98.5	23.9	A	97
92	9-06	Lot 6	FG -1.0	96.7	26.0	A	96
93	9-06	Lot 6	FG	98.0	24.6	A	97
94	9-06	Lot 1 Slope	FG -2.5	98.3	25.0	A	98
95	9-06	Lot 1 Slope	FG -1.5	99.4	22.1	A	98
96	9-07	Lot 1 Slope	FG -1.0	100.3	22.9	A	99
97	9-07	Lot 1 Slope	FG	100.9	24.5	A	100
98	9-12	Lot 10	FG -1.5	98.7	25.2	A	98
99	9-17	Lot 7	FG -2.0	95.1	23.6	A	94
100	9-18	Lot 14	FG -1.0	97.7	25.1	A	97

* Referenced to FG (Finish Grade) or FSG (Finish Subgrade)

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Gentry-Waipio Development
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TABLE I

Summary of Field Density Test Results

Test No.	Date	Location	Elevation*	Dry Density (pcf)	Moisture Content (%)	Material Type	Percent Compaction
	1979						
101	9-25	Lot 25	FG -0.5	100.8	23.4	A	100
102	9-25	Lot 13	FG	93.5	24.7	A	92
103	10-04	Lot 12	FG	100.6	25.1	S	100
104	10-04	Lot 8	FG	99.3	23.9	S	99
105	10-04	Lot 28	FG	94.6	22.8	S	94
106	10-04	Lot 31	FG	103.1	24.4	S	100+
107	10-04	Lot 34	FG	97.9	24.0	S	97
108	10-04	Lot 37	FG	96.2	24.7	S	96
109	10-04	Lot 40	FG	100.1	25.0	S	100
110	10-04	Lot 43	FG	98.8	24.6	S	98
111	10-12	Lot 23	FG	97.3	27.6	S	96
112	10-12	Lot 20	FG	98.1	27.1	S	98
113	10-12	Lot 17	FG	97.3	27.6	S	97
114	10-31	Lot 77	FG -1.0	97.9	24.0	A	97
115	10-31	Lot 77	FG	93.7	22.1	A	93
116	11-13	Lot 29	FG -2.5	95.8	24.6	A	95
117	11-13	Lot 57	FG -1.5	94.6	23.0	A	93
118	11-13	Lot 30	FG	93.2	21.8	A	92
119	11-13	Lot 55	FG	93.7	22.9	A	93
120	11-13	Lot 29	FG -0.5	96.3	25.1	A	95
121	11-13	Lot 57	FG	97.7	24.4	A	97
	1980						
122	1-22	Lot 28 Slope	FG -2.5	92.0	27.0	A	91
123	1-22	Lot 7 Slope	FG -1.5	93.0	25.0	A	92
124	1-23	Slope Between Lots 7 & 28	FG	92.0	25.0	A	92
125	3-14	Lot 29 Backfill	FG -3.0	100.8	27.1	A	100

* Referenced to FG (Finish Grade) or FSG (Finish Subgrade)

File No. R-004-H5F
Mikilana I Subdivision
Gentry-Waipio Development
Waipio, Oahu, Hawaii

TABLE I

Summary of Field Density Test Results

Test No.	Date	Location	Elevation*	Dry Density (pcf)	Moisture Content (%)	Material Type	Percent Compaction
	1980						
126	3-14	Lot 29 Backfill	FG -1.5	101.3	26.3	A	100
127	4-03	Lot 28 Backfill	FG	93.0	28.0	A	92
128	5-03	Lot 28 Backfill	FG -1.5	93.6	28.7	A	92
129	6-26	Lot 28 Backfill	FG -1.0	97.6	27.3	A	96
130	6-26	Lot 28 Backfill	FG	95.3	25.1	A	94

* Referenced to FG (Finish Grade) or FSG (Finish Subgrade)

File No. R-0054-H5F
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Gentry-Waipio Development
Waipio, Oahu, Hawaii

TABLE II

Summary of Laboratory Test Results

Sample	Description	Optimum Moisture Content (%)	Maximum Dry Density (pcf)
A	Reddish brown Clayey Silt (ML)	24.5	101.2
A-1	Reddish brown Clayey Silt (ML)	25.9	102.0
E	Light red Clayey Silt (ML)	25.4	100.0
I	Brown Sandy Silt (ML)	27.8	97.0
I-3	Brown Clayey Silt (ML)	27.2	98.7
K	Orange mottled Clayey Silt (MH) with decomposed rock fragment	28.5	93.0
L	Light brown Clayey Silt with decomposed rock fragment	30.8	87.6
O	Reddish brown Silt	24.6	102.2
P	Reddish brown Clayey Silt	24.2	104.5
R	Reddish brown Clayey Silt	24.7	103.0
S	Brown red Clayey Silt	28.7	92.5

SITE and DENSITY TEST LOCATION PLAN

MIKILANA I - GENTRY WAIPIO
Waipio, Ewa, Oahu, Hawaii

FEWELL GEOTECHNICAL ENGINEERING, LTD.

● Field Density Test Location

Finish Contour

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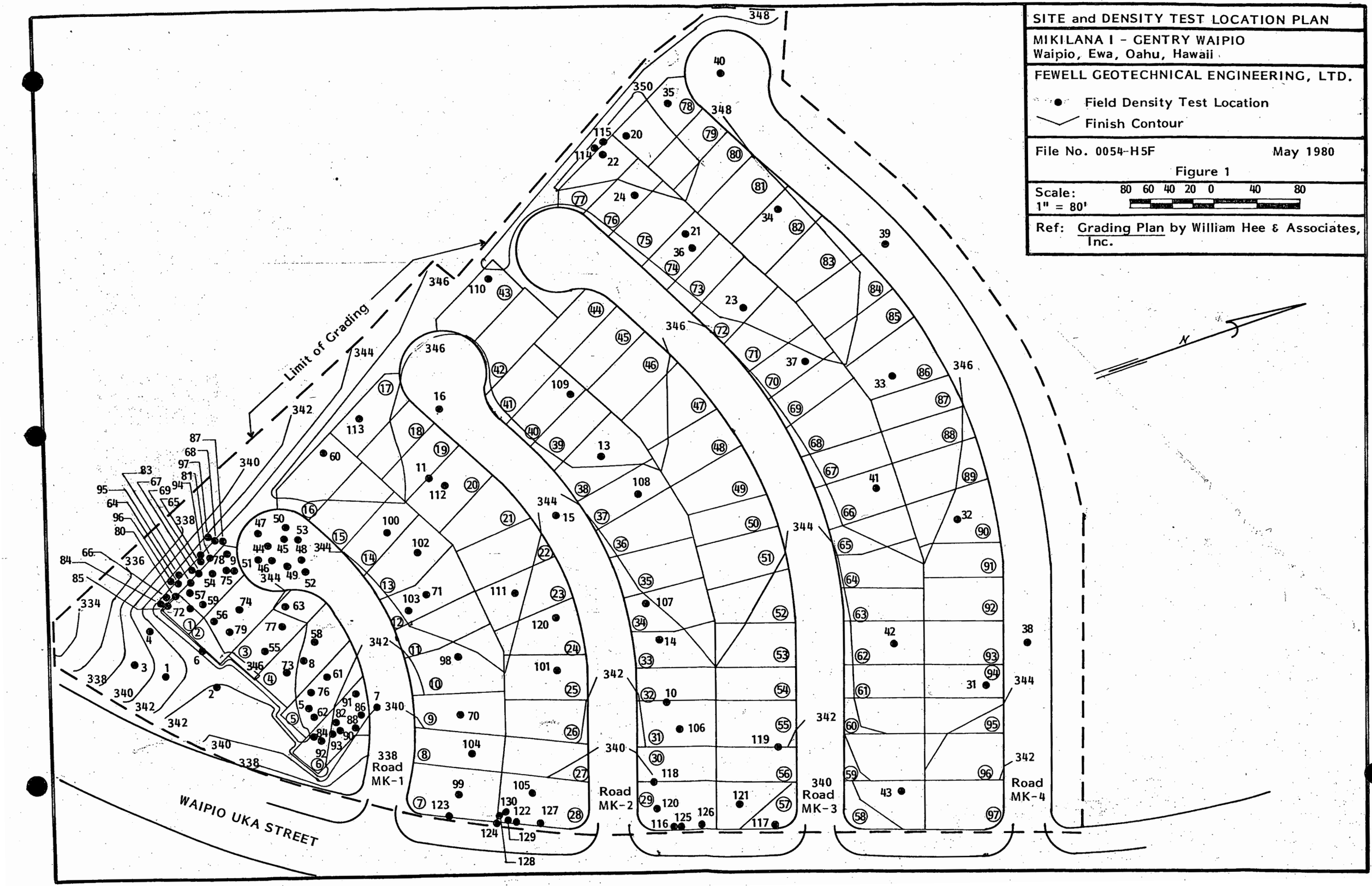
Figure 1

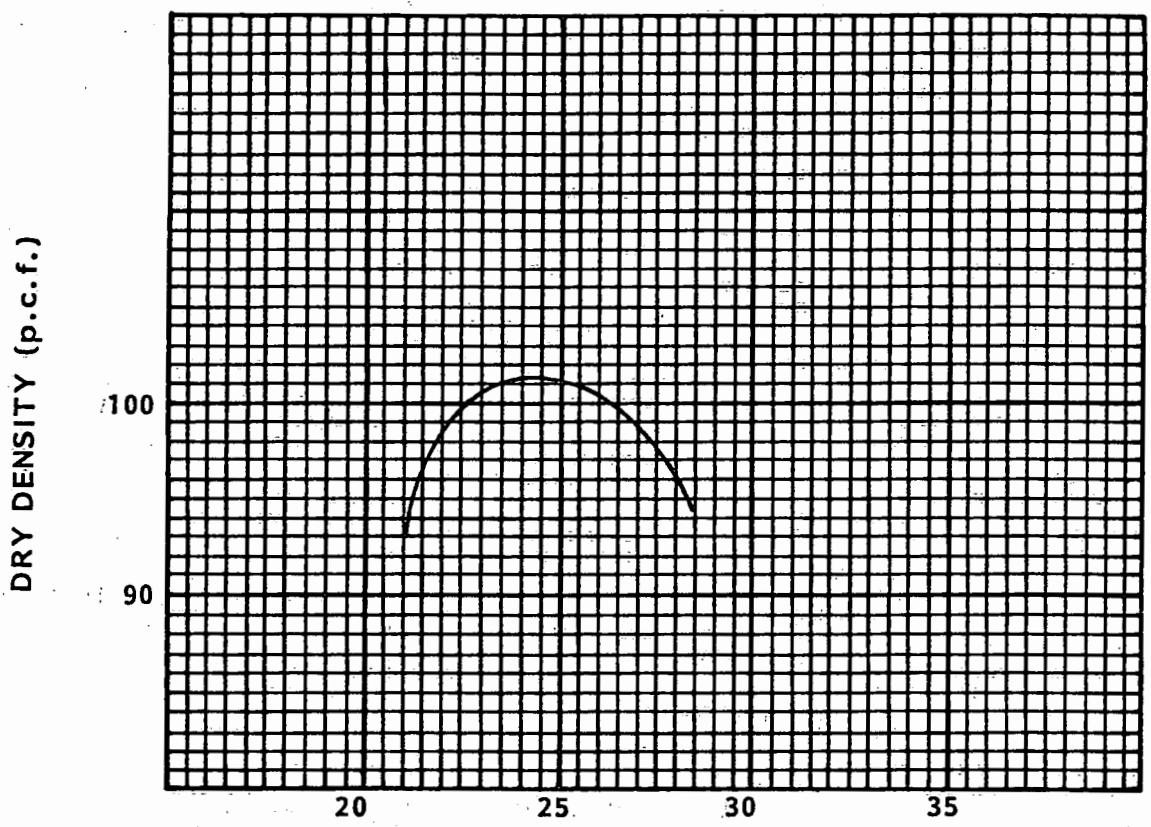
Scale: 1" = 80'

80 60 40 20 0 40 80

Ref: Grading Plan by William Hee & Associates, Inc.



LABORATORY COMPACTION CURVE



Sample: Bag "A"

Description: Reddish brown Clayey SILT (ML)

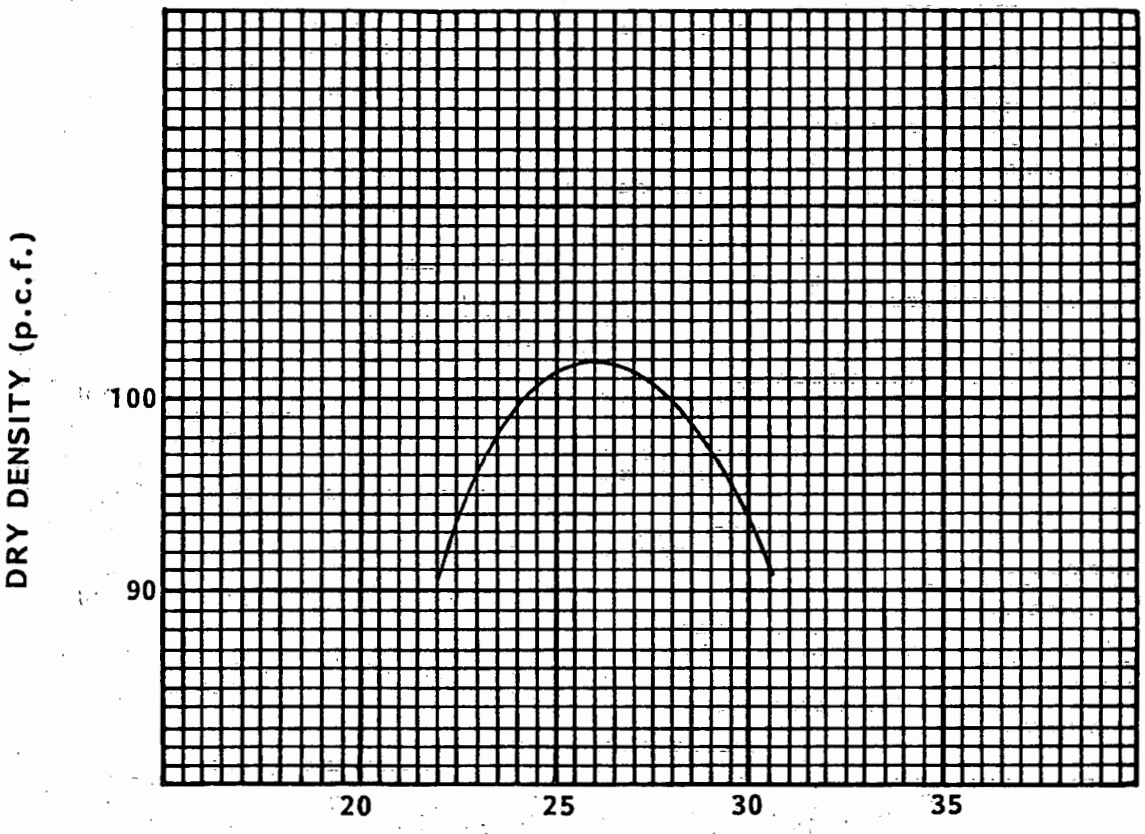
Laboratory Test Procedure: ASTM D1557-70

Maximum Dry Density: 101.2 p.c.f.

Optimum Moisture Content: 24.5%

File No. R-0054-H5F
Figure 2

LABORATORY COMPACTION CURVE



Sample: Bag "A-1"

Description: Reddish Brown Clayey SILT (ML)

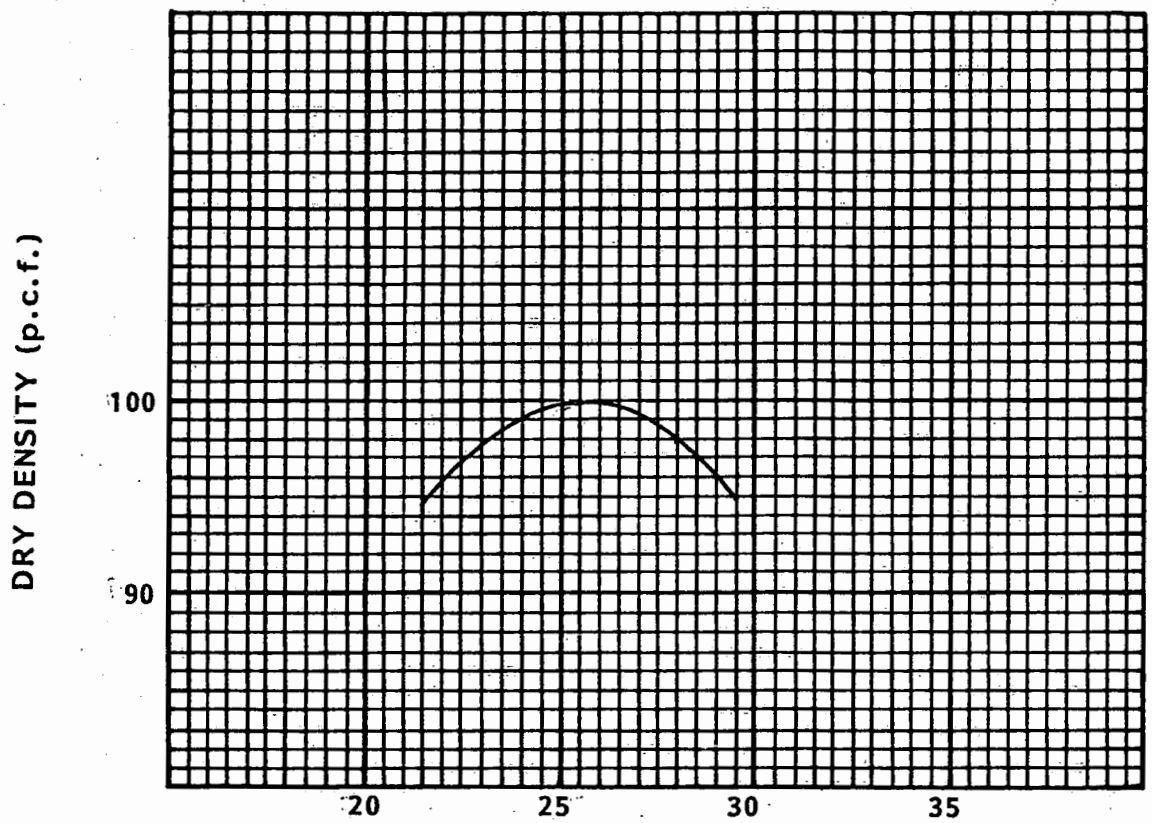
Laboratory Test Procedure: ASTM D1557

Maximum Dry Density: 102.0 p.c.f.

Optimum Moisture Content: 25.9%

File No. R-0054-H5F
Figure 3

LABORATORY COMPACTION CURVE



Sample: Bag "E"

Description: Light Red Clayey SILT (ML)

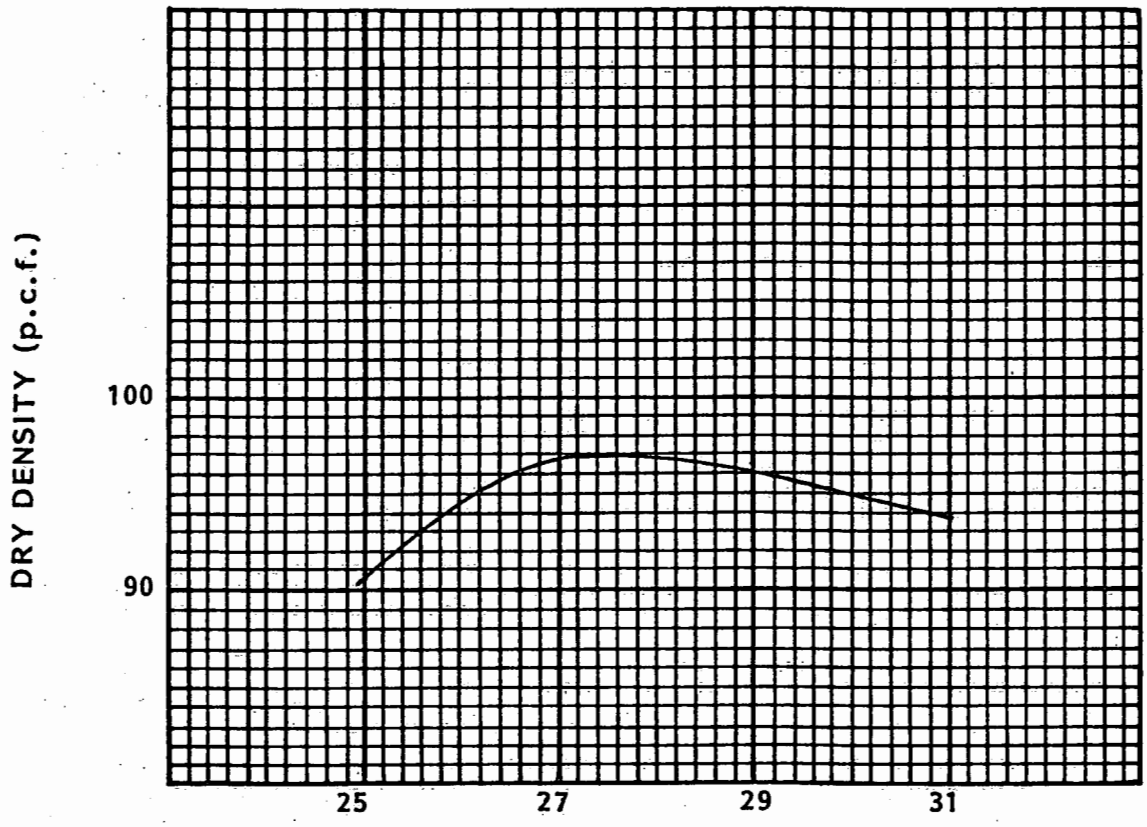
Laboratory Test Procedure: ASTM D1557-70

Maximum Dry Density: 100.0 p.c.f.

Optimum Moisture Content: 25.4%

File No. R-0054-H5F
Figure 4

LABORATORY COMPACTION CURVE



Sample: Bag "I"

Description: Brown Sandy SILT with Clay binder (ML)

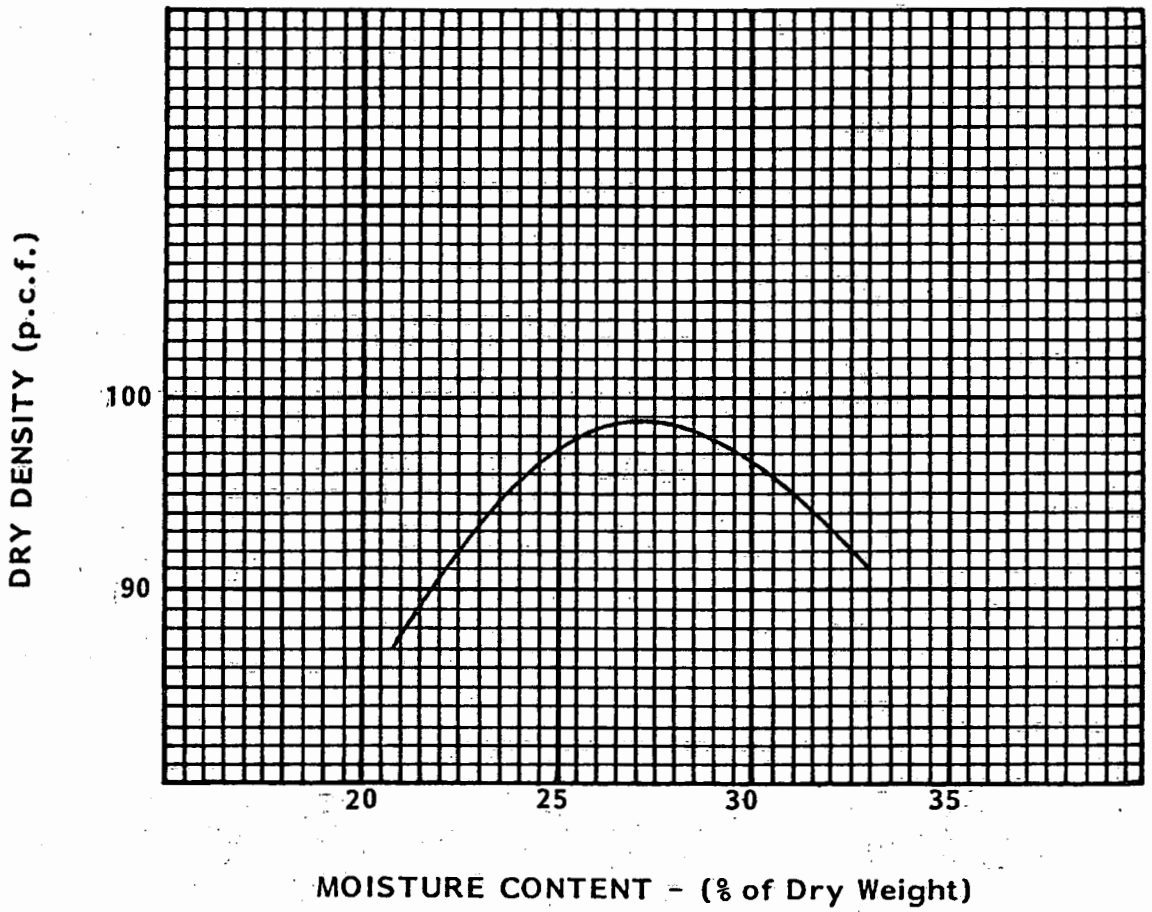
Laboratory Test Procedure: ASTM D1557 - Method A

Maximum Dry Density: 97.0 p.c.f.

Optimum Moisture Content: 27.8%

File No. R-0054-H5F
Figure 5

LABORATORY COMPACTION CURVE



Sample: Bag "I-3"

Description: Brown Clayey SILT (ML)

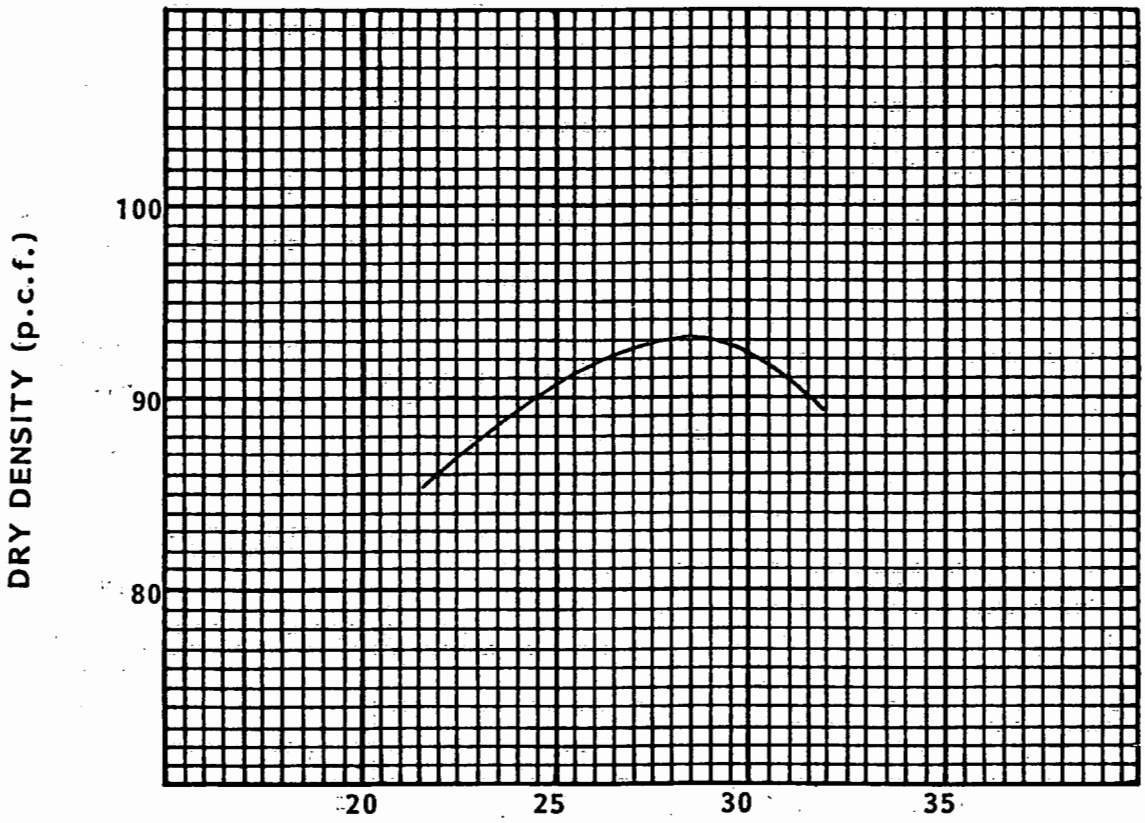
Laboratory Test Procedure: ASTM D1557

Maximum Dry Density: 98.7 p.c.f.

Optimum Moisture Content: 27.2%

File No. R-0054-H5F
Figure 6

LABORATORY COMPACTION CURVE



Sample: Bag "K"

Description: Light Reddish Brown/Orange Clayey SILT with decomposed rock fragments (MH)

Laboratory Test Procedure: ASTM D1557-70

Maximum Dry Density: 93.0 p.c.f.

Optimum Moisture Content: 28.5%

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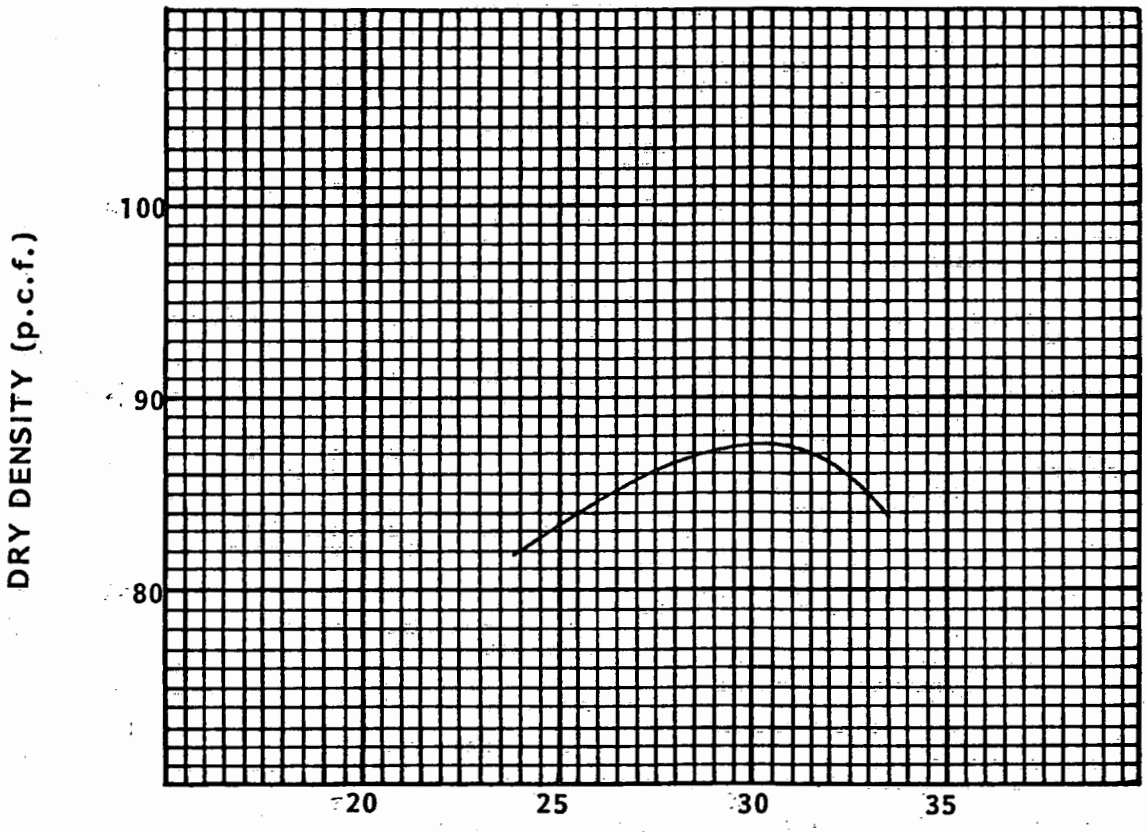
Figure 7

LABORATORY COMPACTION CURVE



Sample: Bag "L"

Description: Light Brown Clayey SILT with decomposed basalt

Laboratory Test Procedure: ASTM D1557-70

Maximum Dry Density: 87.6 p.c.f.

Optimum Moisture Content: 30.8%

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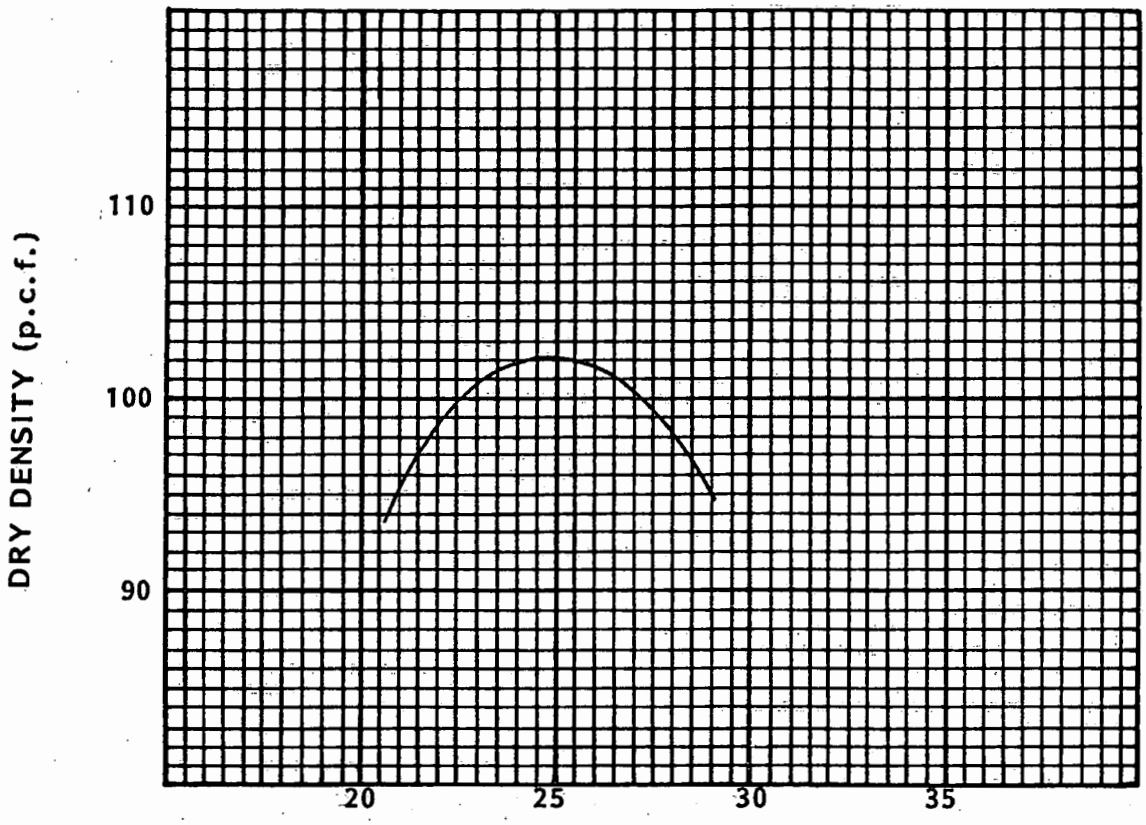
Figure 8

LABORATORY COMPACTION CURVE



Sample: Bag "O"

Description: Reddish Brown SILT

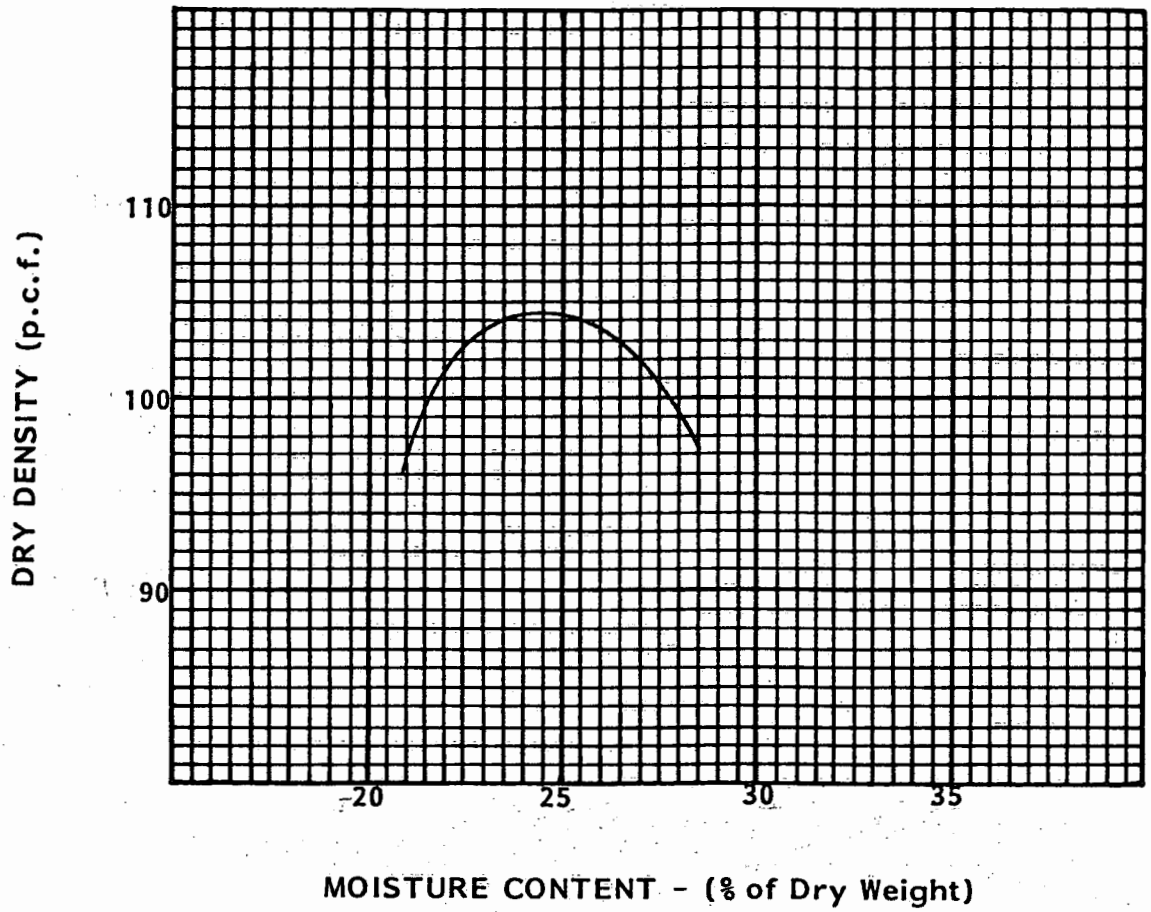
Laboratory Test Procedure: ASTM D1557-70

Maximum Dry Density: 102.2 p.c.f.

Optimum Moisture Content: 24.6%

File No. R-0054-H5F
Figure 9

LABORATORY COMPACTION CURVE



Sample: Bag "P"

Description: Reddish Brown Clayey SILT (ML)

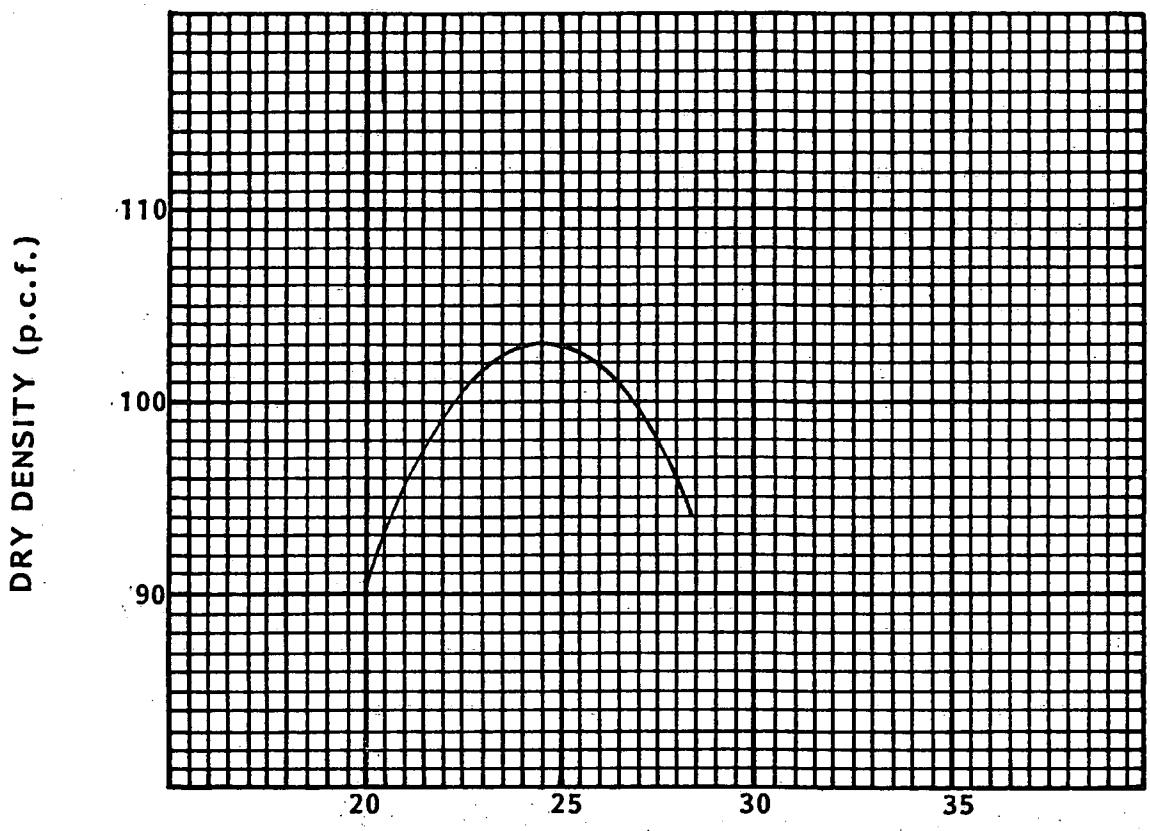
Laboratory Test Procedure: ASTM D1557

Maximum Dry Density: 104.5 p.c.f.

Optimum Moisture Content: 24.2%

File No. R-0054-H5F
Figure 10

LABORATORY COMPACTION CURVE



Sample: Bag "R"

Description: Reddish Brown Clayey SILT (ML)

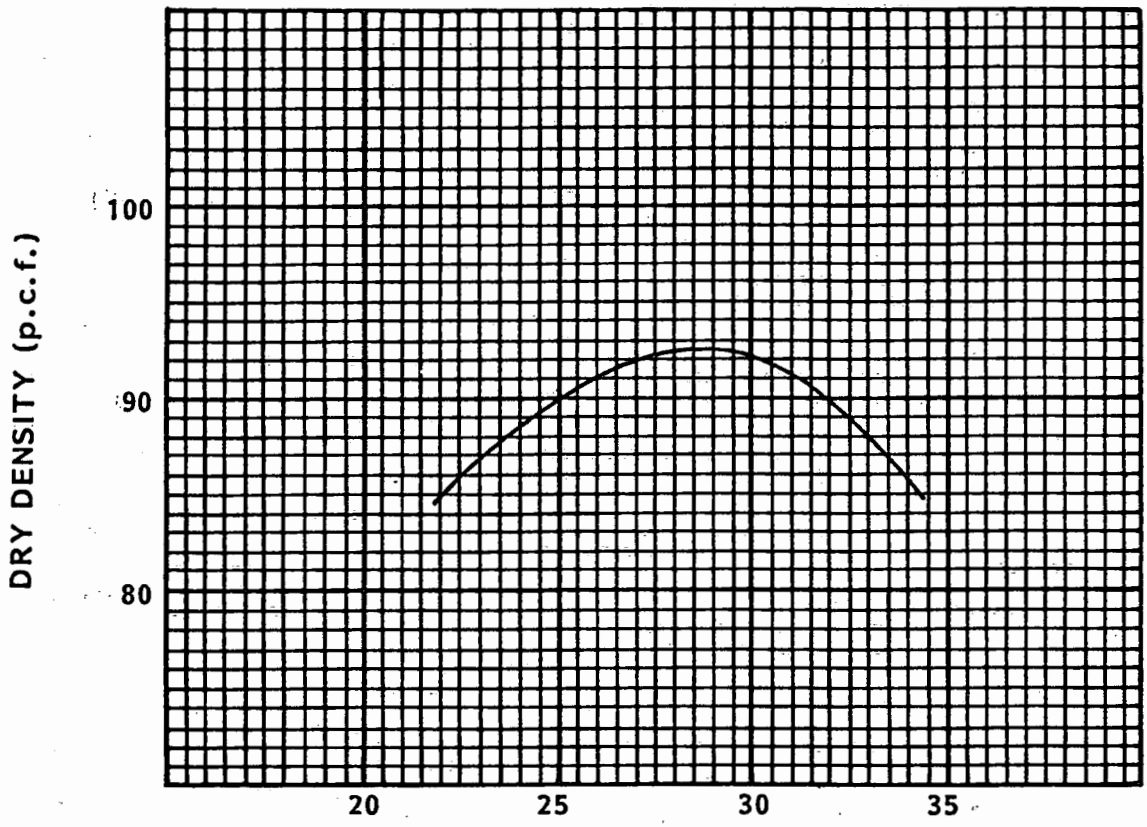
Laboratory Test Procedure: ASTM D1557

Maximum Dry Density: 103.0 p.c.f.

Optimum Moisture Content: 24.7%

File No. R-0054-H5F
Figure 11

LABORATORY COMPACTION CURVE



Sample: Bag "S"

Description: Brownish Red Clayey SILT

Laboratory Test Procedure: ASTM D1557, Methood A

Maximum Dry Density: 92.5 p.c.f.

Optimum Moisture Content: 28.7%

File No. R-0054-H5F
Figure 12

F.G.E., LTD.

Fewell Geotechnical Engineering, Ltd.
99-960A Iwaena Street, • Aiea, Hawaii 96701 • (808) 488-1979

File No. R-0054-H5H
December 3, 1979

Gentry-Waipio, Ltd.
P.O. Box 295
Honolulu, Hawaii 96809

Attention: Mr. James White

Subject: GRADING REPORT (FINAL)
Mikilana Subdivision, Unit II
Gentry-Waipio Development, Phase I
Waipio, Oahu, Hawaii

Gentlemen:

At your request we have provided testing and inspection services for the Mikilana Subdivision of the subject development.

Work started with a general clearing and stripping of the entire area to be developed. Localized soft spots were properly compacted prior to fill placement.

Actual grading operations then commenced using 631 scrapers and D-9 bulldozers to cut, haul and spread the fill material. Compaction of the fill was accomplished using a D-8 dozer with two sheepsfoot rollers and loaded scrapers.

The fill material consisted of low plasticity sandy silts and clayey silts (ML) and was compacted in lifts of approximately 8 inches in thickness at moisture contents generally within 3 percent of the optimum.

Field density tests performed by our firm indicated that adequate compaction was being obtained. These tests showed values in excess of 90 percent relative compaction as determined by Laboratory Compaction Test ASTM D1557.

The following lots were cut to final grade according to the field grade stakes and compacted to 90 percent relative compaction:

Lots 1 through 20
Lots 34 through 51
Lots 98 through 117

File No. R-0054-H5H
December 3, 1979

The lots which received properly compacted engineered fill and are complete according to the field grade stakes are:

Lots 21 through 33
Lots 118 and 119

In summary, the earthwork for Lots 1 through 51, 98 through 119 and Road MK-5 of the Mikilana Subdivision, Unit II has been completed in general accordance with the grading ordinances of the City and County of Honolulu and the requirements of our Soils Investigation Report (dated November 1976) on the subject development. These lots are ready to receive further building improvements.

It should be noted that a disparity in the lot number sequence may exist due to factors beyond our control. The lot numbers utilized during the compaction testing operation and incorporated within this report are the actual lot numbers staked in the field during the grading operations.

The results of the laboratory and field tests performed by our firm are summarized in Tables I and II and graphically exhibited in Figures 2 through 7. A site plan is also included to indicate the locations of the field density tests.

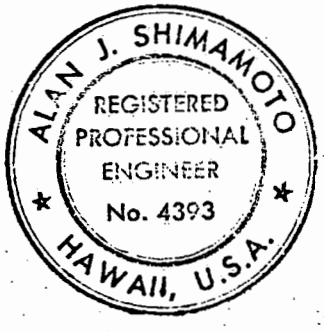
Should you have any questions regarding this matter, please contact us at your convenience.

Respectfully submitted,

FEWELL GEOTECHNICAL ENGINEERING, LTD.

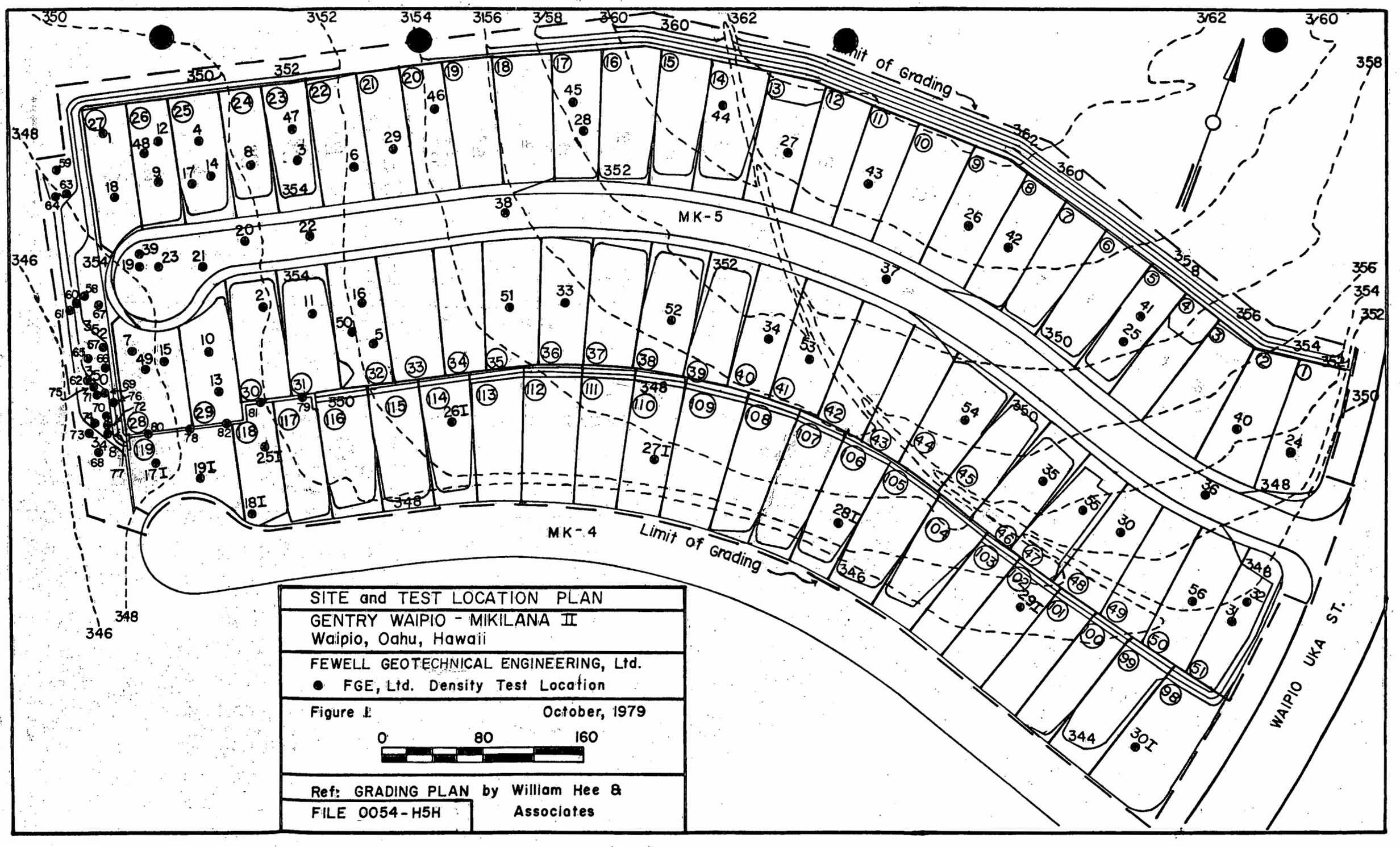
Alan J. Shimamoto

Alan J. Shimamoto, P.E.
Project Engineer



AJS/fse

Enclosures



SITE and TEST LOCATION PLAN

GENTRY WAIPIO - MIKILANA II
Waipio, Oahu, Hawaii

FEWELL GEOTECHNICAL ENGINEERING, Ltd.

● FGE, Ltd. Density Test Location

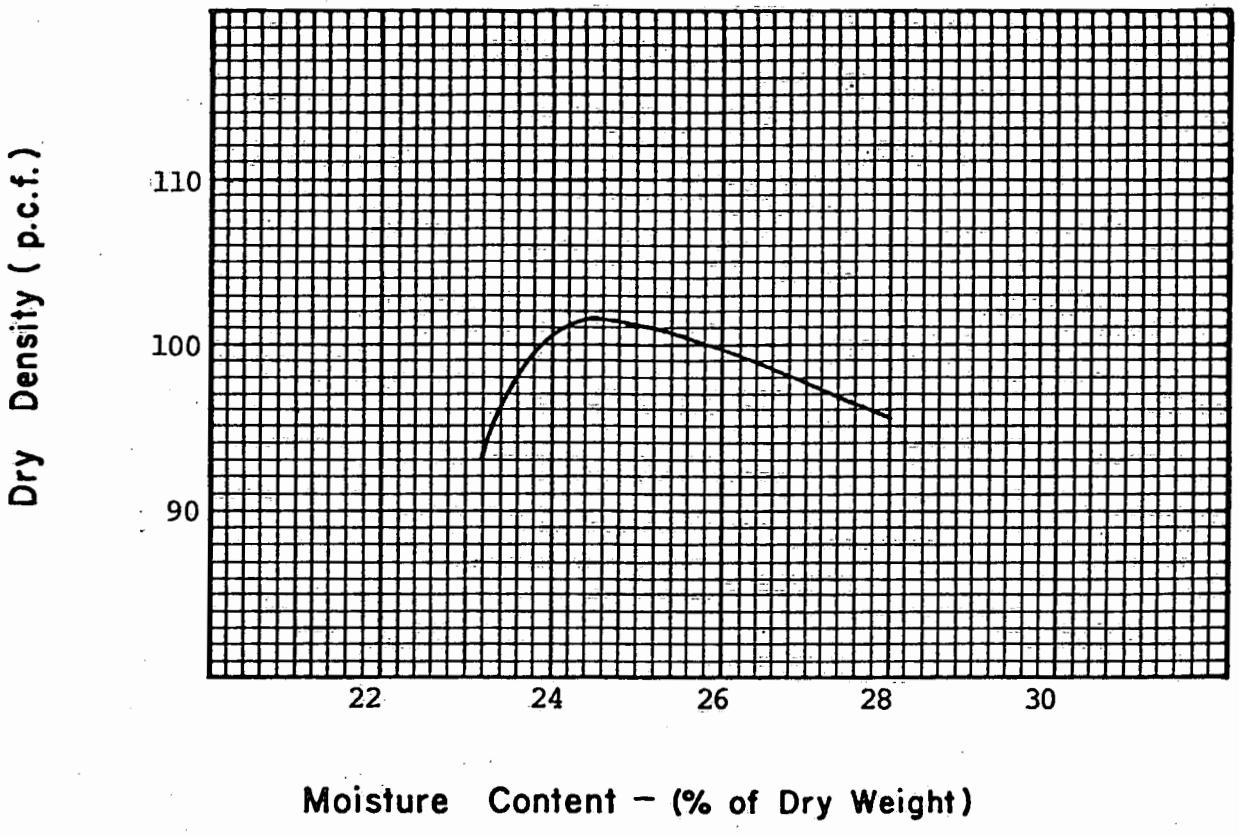
Figure 1 October, 1979

0 80 160

Ref: GRADING PLAN by William Hee & Associates

FILE 0054-H5H

Ref. File No. R-0054-H5G
(Ref. Soils Report dated November 1976)



Sample : Bag "A"

Description : Dark reddish brown Clayey SILT (ML)

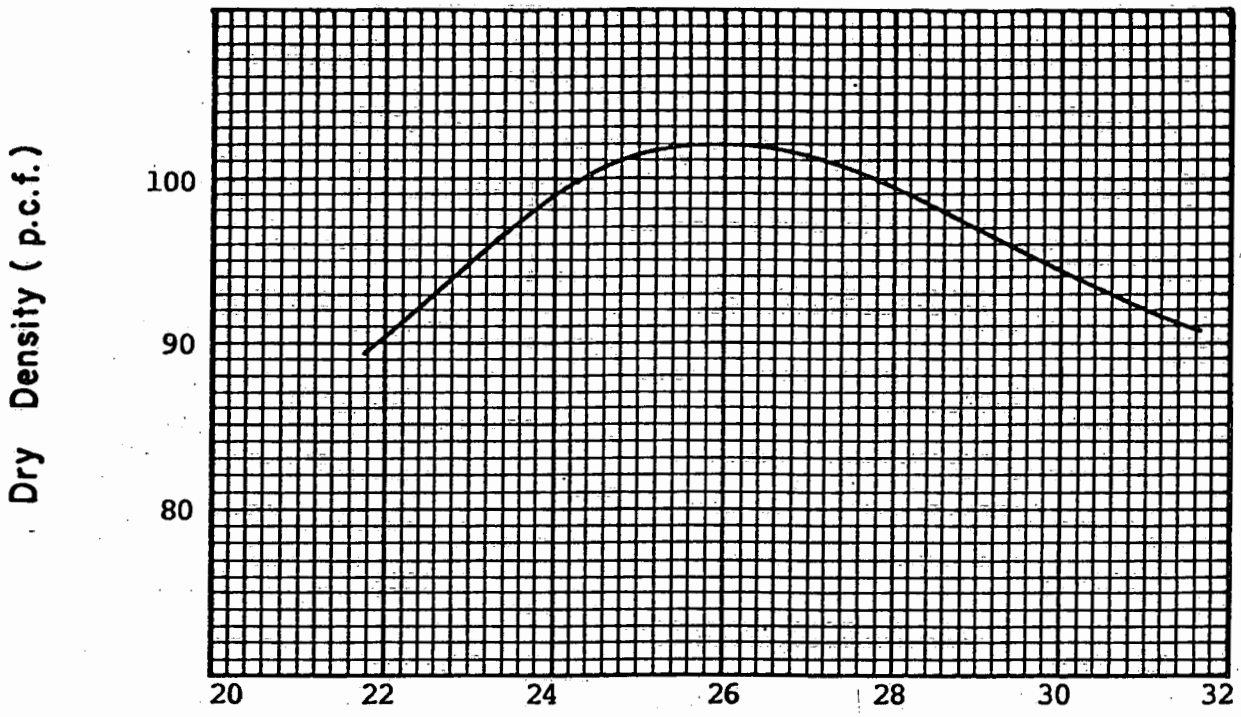
Laboratory Test Procedure : ASTM D1557

Maximum Dry Density : 101.2 p.c.f.

Optimum Moisture Content : 24.5%

File No. R-0054-H5H
Figure 2

Ref. File No's R-0054-H5F and R-0054-H5G



Sample : Bag "A-1" (Road MK-5, Sta. 1+50)

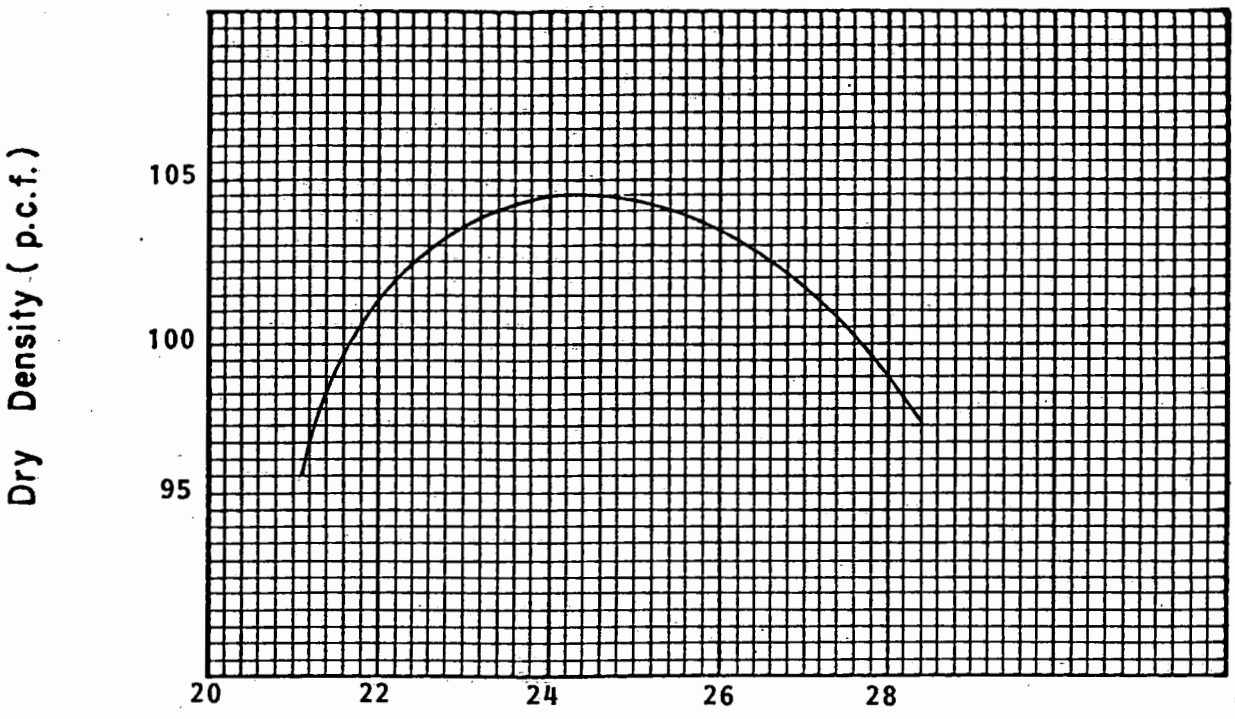
Description : Reddish Brown Clayey SILT (ML)

Laboratory Test Procedure : ASTM D1557

Maximum Dry Density : 102.0 p.c.f.

Optimum Moisture Content : 25.9%

File No. R-0054-H5H
Figure 3



Sample : Bag "P"

Description : Reddish brown Clayey SILT (ML)

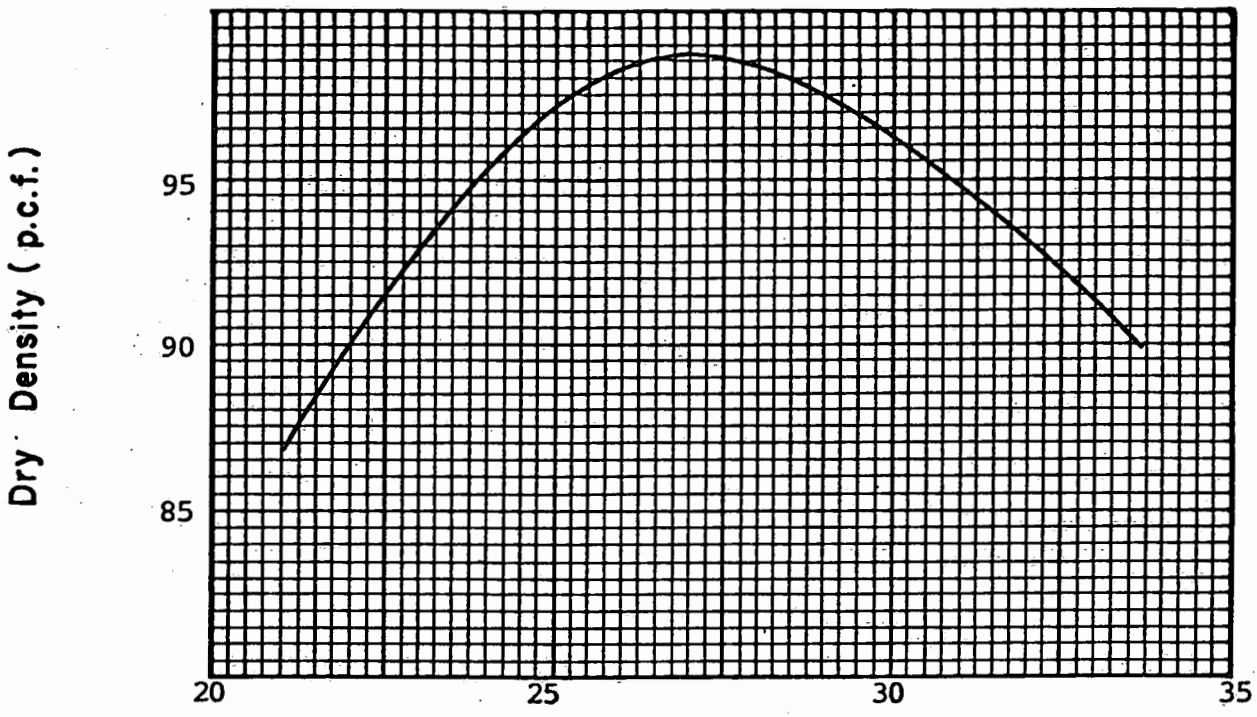
Laboratory Test Procedure : ASTM D1557

Maximum Dry Density : 104.5 p.c.f.

Optimum Moisture Content : 24.2%

File No. R-0054-H5H
Figure 4

Ref. File No. R-0054-H5F



Sample : Bag "I-3" (Road MK-5, Sta. 5+50)

Description : Brown Clayey SILT (ML)

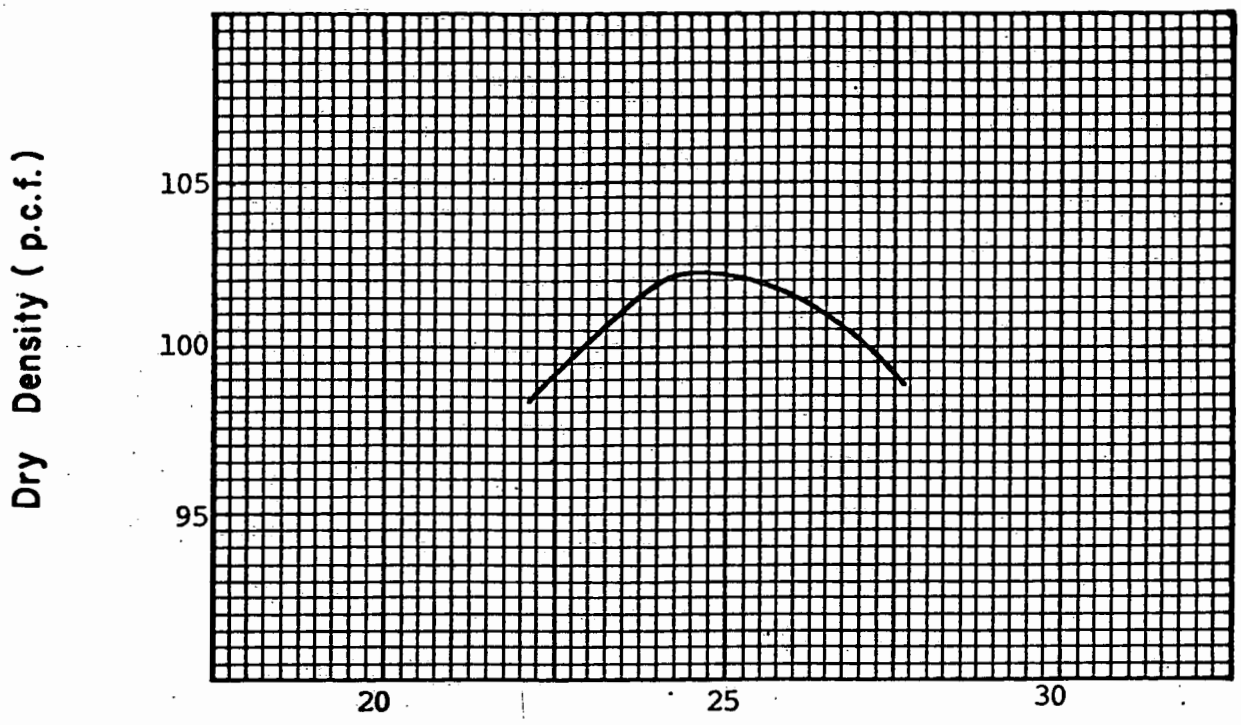
Laboratory Test Procedure : ASTM D1557

Maximum Dry Density : 98.7 p.c.f.

Optimum Moisture Content : 27.2%

File No. R-0054-H5H
Figure 5

Ref. File No. R-0054-H5G



Sample : Bag "O"

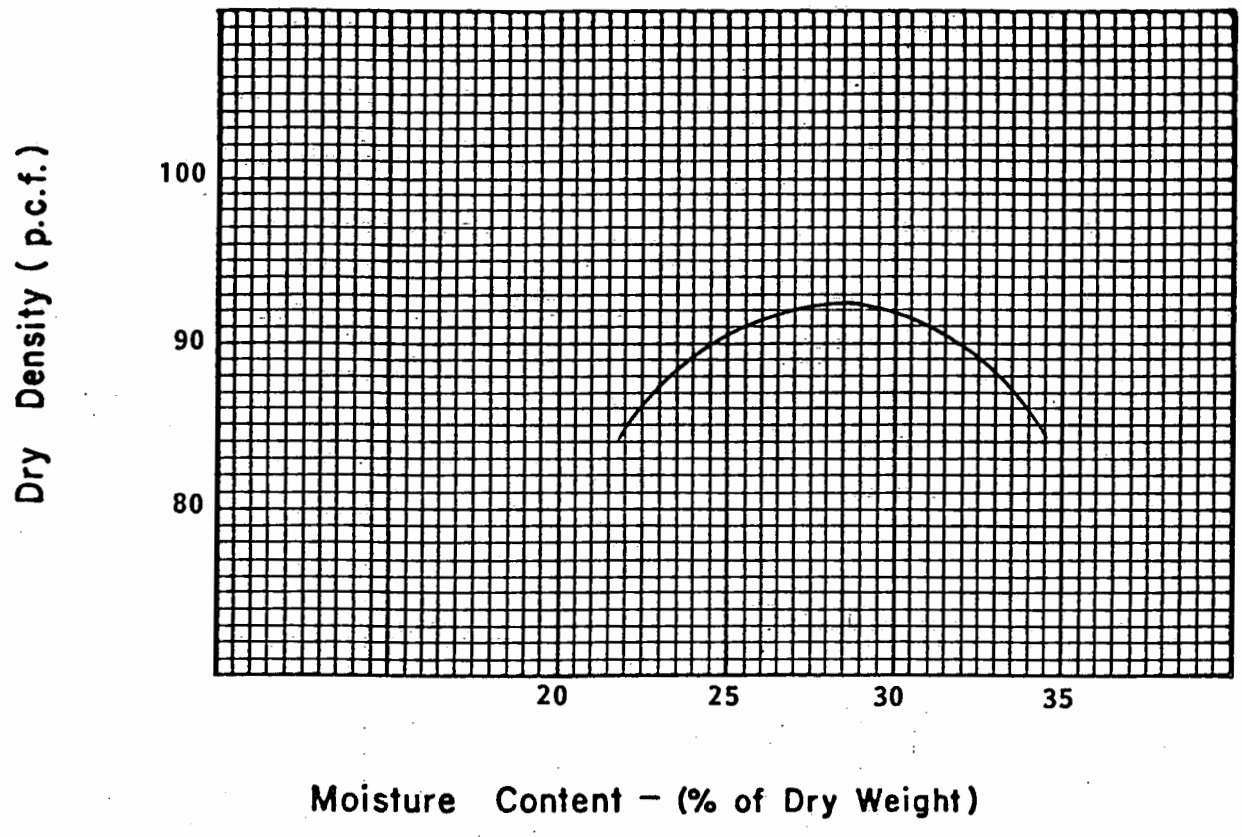
Description : Reddish brown Clayey SILT (ML)

Laboratory Test Procedure : ASTM D1557

Maximum Dry Density : 102.2 p.c.f.

Optimum Moisture Content : 24.6%

File No. R-0054-H5H
Figure 6



Sample : Bag "S"

Description : Brownish red Clayey SILT

Laboratory Test Procedure : ASTM D1557, Method A

Maximum Dry Density : 92.5 p.c.f.

Optimum Moisture Content : 28.7%

File No. R-0054-H5H
Figure 7

TABLE I

Summary of Laboratory Test Results

Sample Designation	Description	Maximum Dry Density p.c.f.	Optimum Moisture Content %
Bag "A"	Reddish brown Clayey SILT (ML)	101.2	24.5
Bag "A-1"	Reddish brown SILT with some organics and decomposed rock (ML)	102.0	25.9
Bag "I-3"	Brown SILT with trace of Clay and some decomposed rock (ML)	98.7	27.2
Bag "P"	Reddish brown Clayey SILT (ML)	104.5	24.2
Bag "O"	Reddish brown SILT with trace of Clay (ML)	102.2	24.6
Bag "S"	Brownish red Clayey SILT	100.5	25.0

File No. R-0054-H5H
Gentry-Waipio, Ltd.
Mikilana Subdivision

TABLE II

Summary of Field Density Test Results

Test No.	Date 1979	Location	Elevation	Dry Density p.c.f.	Moisture Content %	Percent of Maximum Dry Density	Reference Curve
1	5-2	Lot 27	F.G.-5.5'	97.6	26.9	97	A
2	5-2	Lot 30	F.G.-4.5'	97.0	24.8	96	A
3	5-2	Lot 23	F.G.-1.5'	96.8	23.7	96	A
4	5-2	Lot 25	F.G.-3.5'	95.3	24.0	94	A
5	5-2	Lot 32	F.G.-1.0'	95.4	26.1	94	A
6	5-2	Lot 22	F.G.-0.5'	95.9	24.9	95	A
7	5-2	Lot 28	F.G.-4.5'	95.2	26.6	94	A
8	5-2	Lot 24	F.G.-2.0'	94.9	24.5	94	A
9	5-2	Lot 26	F.G.-2.0'	96.0	25.0	95	A
10	5-3	Lot 29	F.G.-2.0'	97.3	25.4	96	A
11	5-3	Lot 31	F.G.-0.5'	94.9	28.7	94	A
12	5-3	Lot 26	F.G.-1.5'	95.9	26.6	95	A
13	5-3	Lot 29	F.G.-1.0'	95.5	23.7	94	A
14	5-3	Lot 25	F.G.-1.0'	95.9	23.9	95	A
15	5-3	Lot 28	F.G.-0.5'	96.4	23.6	95	A
16	5-4	Lot 32	F.G.	94.7	25.4	94	A
17	5-4	Lot 25	F.G.	95.2	24.9	94	A
18	5-4	Lot 27	F.G.	94.7	26.3	94	A
19	5-7	Rd. MK-5 Sta. 10+10	S.G.-4.0'	99.7	23.9	95	P
20	5-7	Rd. MK-5 Sta. 9+20	S.G.-3.0'	97.8	25.4	94	P
21	5-8	Rd. MK-5 Sta. 9+90	S.G.-2.0'	100.0	23.4	95	P
22	5-8	Rd. MK-5 Sta. 8+75	S.G.-1.0'	99.6	23.9	95	P
23	5-8	Rd. MK-5 Sta. 10+00	Subgrade	99.1	23.9	95	P
24	5-9	Lot 1	F.G.	99.4	24.7	95	P
25	5-9	Lot 5	F.G.	96.7	25.4	93	P
26	5-10	Lot 9	F.G.	98.3	24.4	94	P
27	5-10	Lot 13	F.G.	99.7	23.0	95	P
28	5-11	Lot 17	F.G.	98.2	24.6	94	P
29	5-11	Lot 21	F.G.	97.7	22.8	94	P
30	5-11	Lot 48	F.G.	96.8	24.2	93	P
31	5-11	Lot 51	F.G.-0.5'	97.8	24.5	94	P
32	5-11	Lot 51	F.G.	99.2	24.1	95	P
33	5-14	Lot 36	F.G.	99.1	24.7	95	P
34	5-14	Lot 40	F.G.	98.7	24.3	95	P
35	5-14	Lot 46	F.G.	98.7	24.6	95	P

File No. R-0054-H5H
Gentry-Waipio, Ltd.
Mikilana Subdivision

TABLE II

Summary of Field Density Test Results

Test No.	Date 1979	Location	Elevation	Dry Density p.c.f.	Moisture Content %	Percent of Maximum Dry Density	Reference Curve
36	5-15	Rd. MK-5 Sta. 1+00	Subgrade	99.3	24.8	97	A-1
37	5-15	Rd. MK-5 Sta. 4+00	Subgrade	100.5	24.4	100+	I-3
38	5-15	Rd. MK-5 Sta. 7+00	Subgrade	98.0	24.6	99	I-3
39	5-15	Rd. MK-5 Sta. 10+00	Subgrade	99.4	22.6	97	A-1
40	8-21	Lot 2	F.G.	97.3	23.3	96	A
41	8-21	Lot 5	F.G.	95.5	24.7	94	A
42	8-21	Lot 8	F.G.	95.8	24.4	95	A
43	8-21	Lot 11	F.G.	94.5	25.4	93	A
44	8-21	Lot 14	F.G.	93.8	25.3	93	A
45	8-24	Lot 17	F.G.	92.9	22.6	92	A
46	8-24	Lot 20	F.G.	91.5	25.7	90	A
47	8-24	Lot 23	F.G.	93.7	24.2	93	A
48	8-28	Lot 26	F.G.	92.1	28.0	91	O
49	9-10	Lot 28	F.G.	101.0	16.2	100	A
50	9-10	Lot 32	F.G.	99.0	21.4	98	A
51	9-10	Lot 35	F.G.	97.9	21.5	97	A
52	9-10	Lot 38	F.G.	96.1	22.0	95	A
53	9-10	Lot 41	F.G.	97.2	22.1	96	A
54	9-14	Lot 44	F.G.	98.1	22.1	97	A
55	9-14	Lot 47	F.G.	97.7	23.0	97	A
56	9-14	Lot 50	F.G.	98.9	23.7	98	A
SLOPE RECONSTRUCTION - Lots 27 and 28							
57	10-23	Lot 28	F.G.-3.5'	98.7	25.8	98	A
58	10-25	Cul-de-Sac MK-5	F.G.-3.0'	----	----	Too soft & wet	S
59	10-25	Lot 27	F.G.-2.5'	97.3	26.1	97	S
60	10-25	Retest #58	F.G.-2.8'	87.0	24.0	87	S
61	10-25	Retest #58	F.G.-2.8'	94.3	22.9	93	S
62	10-25	Lot 28	F.G.-2.8'	89.9	20.8	90	S
63	10-26	Lot 27	F.G.-1.0'	----	----	Too soft & wet	S
64	10-26	Retest #63	F.G.-1.0'	93.0	22.0	92	S
65	10-26	Lot 28	F.G.-2.5'	93.0	21.2	92	S
66	10-29	Lot 28	F.G.-1.5'	94.3	24.4	93	A
67	10-29	Lot 28	F.G.-0.5'	95.6	25.1	94	A
68	10-30	Lot 28	F.G.-9.0'	96.9	25.4	96	A
69	10-30	Lot 28	F.G.-8.0'	98.1	24.8	97	A
70	10-30	Lot 28	F.G.-7.0'	97.4	24.9	96	A

File No. R-0054-H5H
Gentry-Waipio, Ltd.
Mikilana Subdivision

TABLE II

Summary of Field Density Test Results

Test No.	Date 1979	Location	Elevation	Dry Density p.c.f.	Moisture Content %	Percent of Maximum Dry Density	Reference Curve
71	10-31	Lot 28	F.G.-6.0'	99.4	25.2	98	A
72	10-31	Lot 28	F.G.-5.0'	96.7	24.0	96	A
73	10-31	Lot 28	F.G.-4.0'	98.4	23.8	97	A
74	11-2	Lot 28	F.G.-3.0'	100.4	25.4	99	A
75	11-2	Lot 28	F.G.-2.0'	96.1	23.2	95	A
76	11-2	Lot 28	F.G.-1.0'	97.3	22.8	96	A
77	11-5	Lot 28	F.G.	100.3	25.0	99	A
CRM WALL BACKFILL - Lots 28, 29, 30 & 31							
78	11-19	Lot 29	F.G.-2.5'	91.5	23.6	90	A
79	11-19	Lot 31	F.G.-1.5'	92.4	22.9	91	A
80	11-19	Lot 28	F.G.-1.5'	94.6	24.1	93	A
81	11-19	Lot 30	F.G.-0.5'	93.0	23.9	92	A
82	11-19	Lot 29	F.G.	94.8	24.4	94	A
TESTS OF LOTS 98-119* - See Note Below							
17I	5-12	Lot 119	F.G.-2.0'	101.5	23.3	97	P
18I	5-12	Lot 118	F.G.-1.0'	100.7	24.1	96	P
19I	5-12	Lot 119	F.G.-0.5'	102.0	24.5	98	P
25I	5-14	Lot 118	F.G.	97.4	25.4	93	P
26I	5-14	Lot 114	F.G.	95.8	24.9	92	P
27I	5-14	Lot 110	F.G.	96.2	24.9	92	P
28I	5-14	Lot 106	F.G.	96.3	25.4	92	P
29I	5-14	Lot 102	F.G.	98.9	24.6	95	P
30I	5-14	Lot 98	F.G.	98.9	24.8	95	P

*NOTE: Field density test numbers 17I - 19I and 25I through 30I are included in this report. However, actual testing took place at an earlier time frame in conjunction with the Mikilana I project.

File No. R-0054-H5H
Gentry-Waipio, Ltd.
Mikilana Subdivision

p/s, record - bg ✓ card ✓ list ✓ addr ✓ file

SR-53

101-22-0409

Date: August 18, 1981

TO: Gentry Pacific, Inc.
130 Merchant Street, Suite 1809
Honolulu, Hawaii 96813

Gentlemen:

Re: GENTRY WAIPIO - MIKILANA I AND II

TMK: 9-4-06: 12

We are sending you herewith X Under separate cover ____

No. of Copies	Description
1	Approved Grading Permit Nos. 9464 and 9143

For:

X Your information and use ____ Approval
____ Review and comment ____ Signature
____ As requested ____

Remarks:

The date of our approval, August 12, 1981, is the closing date of the permit. The bond filed with the City for the grading work shall remain in effect for a period of one year after the closing date; therefore, it will be returned to you on August 12, 1982.

Very truly yours,

PERMIT CLOSED

MICHAEL J. CHUN
For Director and Chief Engineer

MY:mh
Attach.
cc: William Mee & Assoc.
Industrial Indemnity Co.
bcc: Service Engineer w/original

NAKAMURA

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU

180 X 1569

GV127-80 6 2 0 3 0 $0005.00

PERMIT NO. 9464

To the Director and Chief Engineer
Department of Public Works
City and County of Honolulu

APPLICATION AND PERMIT FOR
GRADING

Application is hereby made to do grading work in conformity with Chapter 23, R. O. 1969, As Amended, as follows:

TAX MAP KEY					ENG. SOILS REPORT	EST. QUANTITY	PERMIT FEE	FEE RECEIVED
ZONE	SEC.	PLAT	PAR.	LOT	DATE FILED:	EXCAV. CU.YD. ~~14,250~~ 8h	$	$ 5.00
9	4	06	12			FILL CU.YD. ~~37,300~~ h	$ ~~135.00~~ 5.00	BY: CP DATE: 11-17-80

Located at MIKILANA - WAIPIO, EWA, OAHU

Lot Area 322,340 Sq. Ft. 7.4 Acres

☑ Temporary Erosion Control

Procedures on File W/ 8651

Industrial Indemnity ☑ Bond on file ~~SUBST. BOND ON FILE W/ DLU~~ BOND NT GP 7893

☑ Dept. of Public Works to Inspect

☐ Bldg. Dept. to Inspect

Description of Soil: Fill Material RED SILTY CLAY; Existing Ground —

Estimated Starting Date Nov ~~17~~ 17 19 80 Estimated Completion Date June 17 19 81

Remarks/Purpose of Work: TO GRADE SITE; FOR GRASSING ONLY; (SUPERSEDES #8651)

Owner Gentry Pacific, Ink Address 130 Merchant St 1809 Phone 523 1391

Engineer Wm. Lee & Assoc. BOPD WATARI Address 1020 Auahi St. Phone 531 3116

Contractor Royal Contracting Co. Address 677 Ahua St Phone 839-9006

Date of Application _____ 19____ Permittee James C. White Gentry Pacific

Application Reviewed By _____ SERVICE ENGINEER Date 11/12 19 80

To the Applicant:

Permission is hereby given to do the above work according to the conditions hereon and according to the approved plans and specifications pertaining thereto, subject to compliance with Chapter 23, R. O. 1969, As Amended.

Remarks: _____

Date Nov 17 19 80

Issued By:

Cheryl G. Ayre
FOR DIRECTOR AND CHIEF ENGINEER, DEPT. OF PUBLIC WORKS

Contractor shall notify this office **two working** days before commencing any work and arrange for necessary inspectional services.

THIS PERMIT WILL EXPIRE UNLESS WORK IS STARTED WITHIN 90 DAYS FROM DATE OF ISSUE; OR IF WORK IS SUSPENDED OR ABANDONED FOR 60 DAYS OR MORE AFTER WORK IS BEGUN; OR ONE YEAR FROM DATE OF ISSUE

I hereby certify that all work as requested above has been completed in conformity with Chapter 23, R. O. 1969, As Amended and in accordance with the approved plans and specifications.

Date 3/4 19 81 Permittee James C. White

Date August 12 19 81 PERMIT CLOSED Approved By: [signature]

Final Soils Report Date Filed _____

WILLIAM HEE
& ASSOCIATES, INC.

ENGINEERS • SURVEYORS • PLANNERS

SUITE NO. 1, BUILDING NO. 1
1020 AUAHI STREET
HONOLULU, HAWAII 96814

WILLIAM B. C. HEE, P.E.
PRESIDENT

JERRY S. NAKAGAWA, L.S.
EXECUTIVE VICE PRESIDENT

April 23, 1981

Gentry-Pacific, Ltd.
The Gentry Business Park
94-539 Puahi Street
Waipahu, Hawaii 96797

ATTENTION: Mr. Jim White

SUBJECT: MIKILANA UNITS I AND II

Dear Mr. White:

This is to inform you that the grading for the subject projects were constructed in general conformance to the grades as shown on the approved grading plans.

Very truly yours,

WILLIAM HEE & ASSOCIATES, INC.

Jerry S. Nakagawa
Registered Professional Surveyor
Certificate Number 1698

71-103